

REMARKS

Claims 1-28 are pending in the present application. Claims 1 and 18 have been amended and claim 28 has been added herein. No new matter has been added. Applicant respectfully requests allowance of the application.

Claims 1-4, 7, 9, 14, and 16-17 are rejected under 35 U.S.C. § 102(e) as being anticipated by Lee (U.S. Patent No. 6,759,335, hereinafter "Lee"). Applicant respectfully traverses this rejection.

Claim 1 specifically recites "forming a vertical silicon layer along the sidewalls of the trench to continuously cover at least a portion of the sidewalls, the vertical silicon layer laying conformally along the vertical sidewalls of the trench and having exposed vertical interior surfaces facing away from the substrate" and "performing gas phase doping upon the exposed vertical interior surfaces of the vertical silicon layer." Applicant respectfully submits that the references of record do not teach or suggest the limitations of claim 1.

The Office Action points to layer 62 of Lee, which can be seen in Figure 8 as reproduced below. Clearly, layer 62 has no vertical silicon layer having exposed vertical interior surfaces facing away from the substrate. Layer 62 is substantially horizontal with a small portion that extends into the divit 55 (as labeled in Figure 4). Even if a small area of the vertical portion is exposed, this portion does not face away from the substrate, as required by claim 1. No vertical portion of layer 62 that faces away from the substrate is exposed. Rather, all such portions are formed along the trench fill material 54.

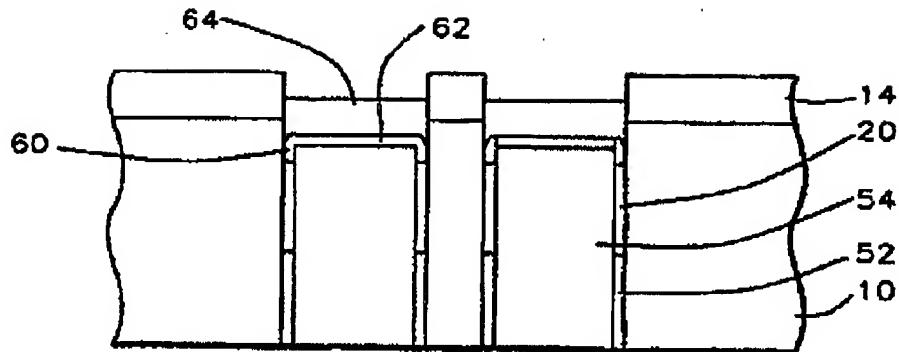


FIG. 8

It is therefore respectfully submitted that claim 1 is allowable over the references of record.

Claims 2-17 depend from claim 1 and add further limitations. It is respectfully submitted that these claims are allowable over the references of record in view of their dependence on an allowable claim as well as the additional limitations

Claims 5-6, 8, 10-13 and 18-24 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Lec in view of Chung et al. (U.S. Patent No. 6,734,106, hereinafter "Chung"). This rejection is also hereby respectfully traversed.

Claim 18 specifically recites "depositing a vertical silicon layer to continuously cover at least a portion of the sidewalls of the node dielectric, the vertical silicon layer laying conformally along the vertical sidewalls and having an exposed interior surface facing about from the

substrate." As discussed above with respect to claim 1, Lee does not teach or suggest the limitations of claim 18. Further, Chung provides no teaching to overcome this shortcoming.

Therefore, it is respectfully submitted that claim 18 is allowable over the references of record.

Claims 19-27 depend from claim 18 and add further limitations. It is respectfully submitted that these claims are allowable over the references of record in view of their dependence on an allowable claim as well as the additional limitations.

For example, claim 19 specifically recites "substantially filling the trench with amorphous silicon after performing the gas phase doping." The Office Action points to region 64, which is SiN and not amorphous silicon as required by the claim. As a result, claim 19 is clearly patentable over Lee.

Claim 28 has been added herein. No new matter has been added. It is respectfully submitted that claim 28 is allowable over the references of record.

Applicant respectfully submits that the claims are in condition for allowance. If the Examiner should have any questions, please contact Applicant's attorney at the number listed below. In the event that there are any fees due, please charge the same, or credit any overpayment, to Deposit Account No. 50-1065.

Respectfully submitted,

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Date

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